



REPLACEMENT SHEET
Title: SYSTEMS AND METHODS FOR USING CASCODED OUTPUT SWITCH IN LOW
VOLTAGE HIGH SPEED LASER DIODE AND EAM DRIVERS

1st Named Inventor: Adrian Maxim

Application No.: 10/642,774

Docket No.: 55123P238

Sheet: 1/9

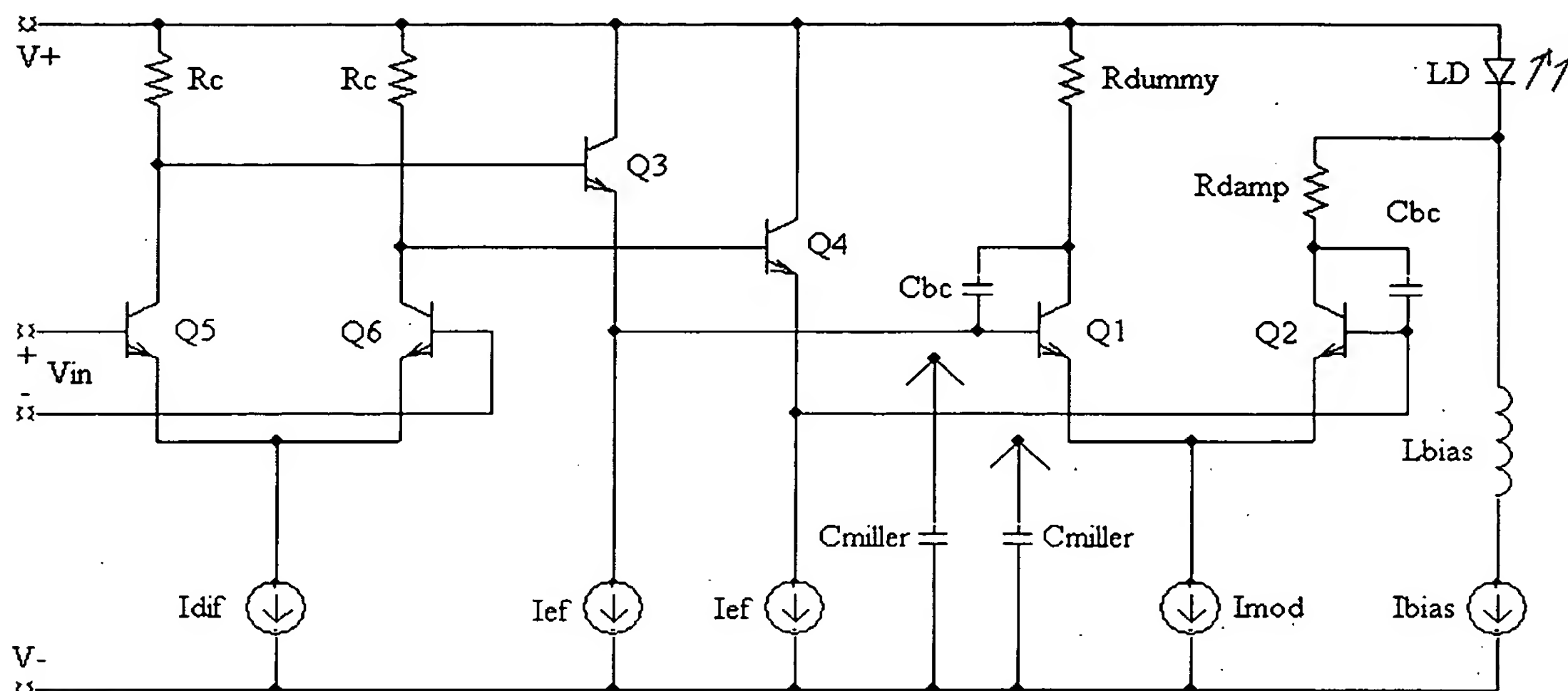


Fig.1 Prior art DC coupled laser diode driver

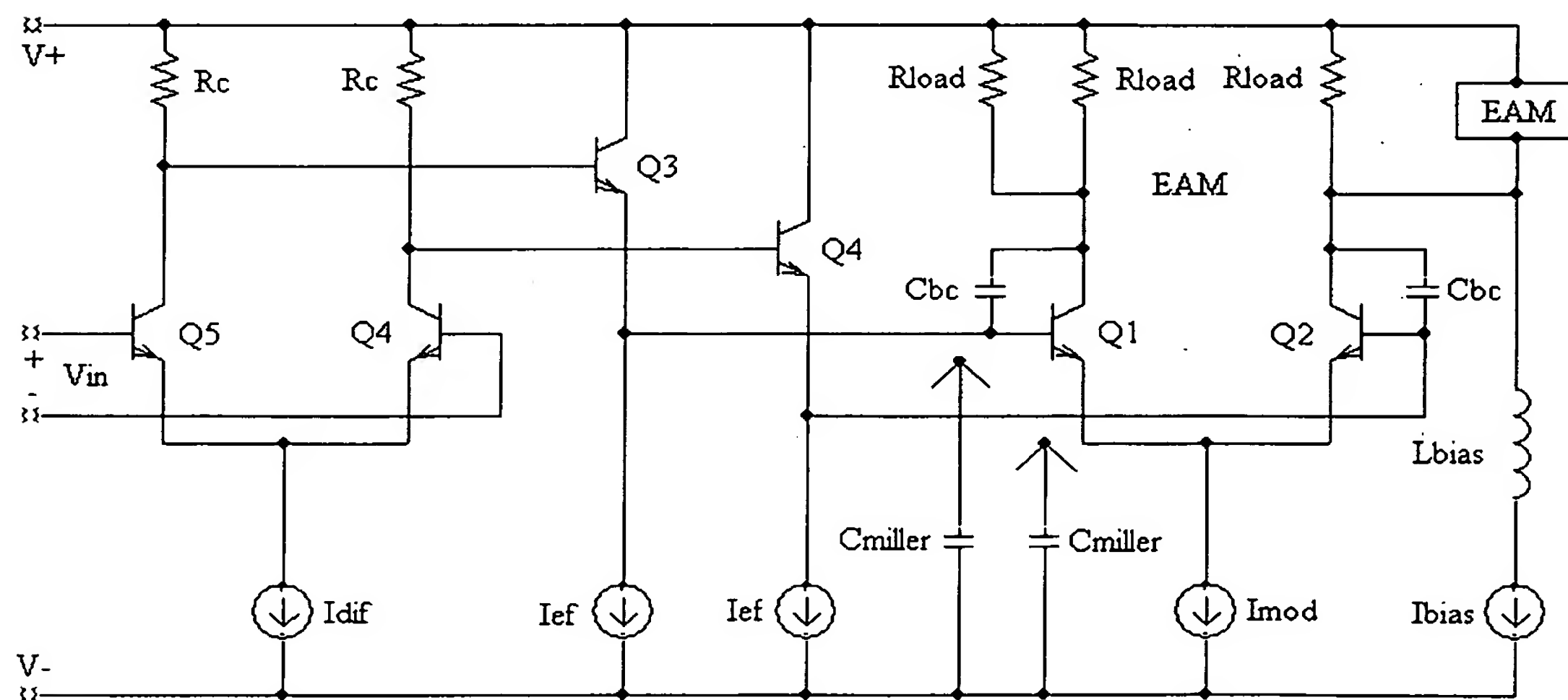


Fig.2 Prior art DC coupled EAM driver

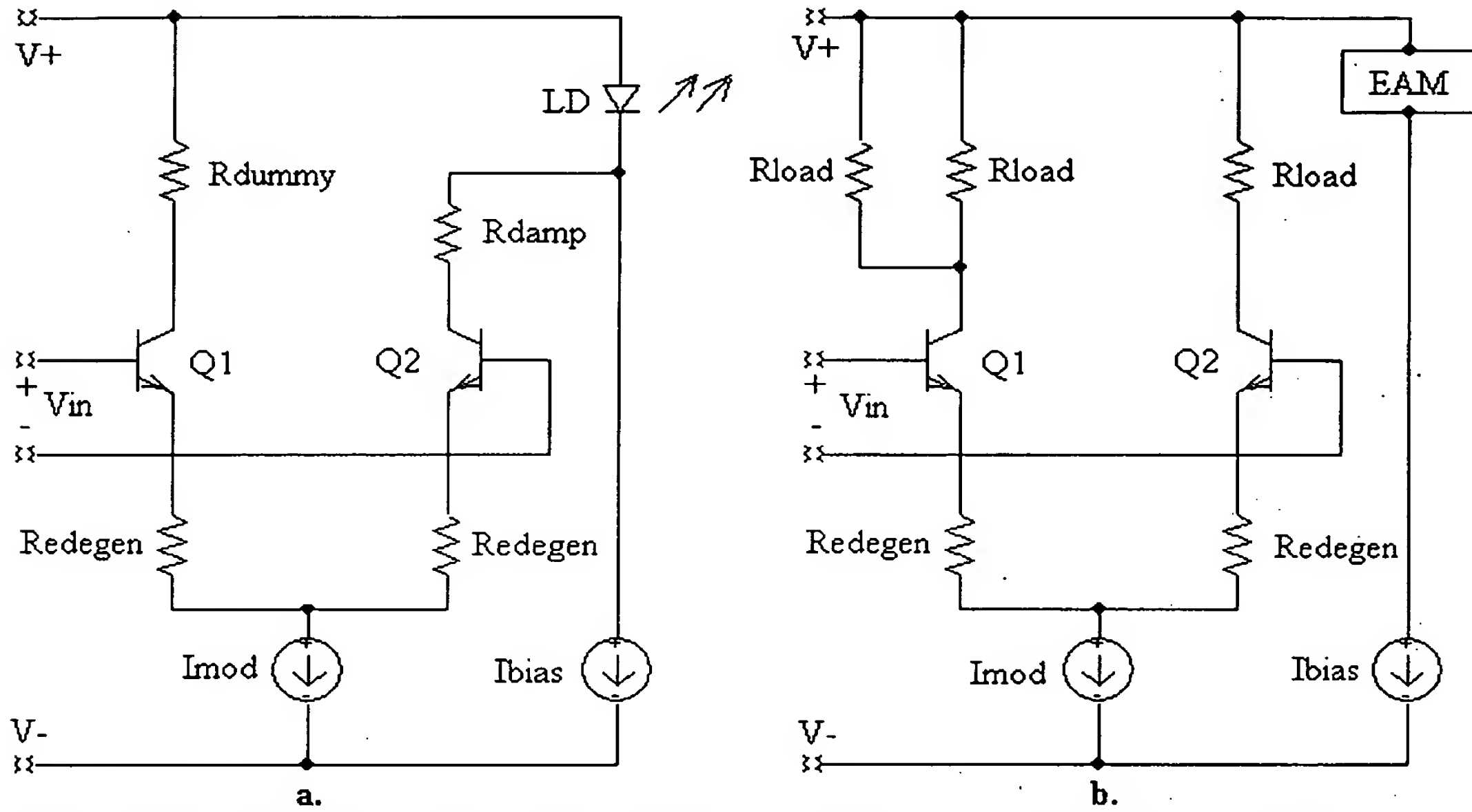


Fig. 3 Prior art output switch with emitter degeneration: a. LD driver, b. EAM driver

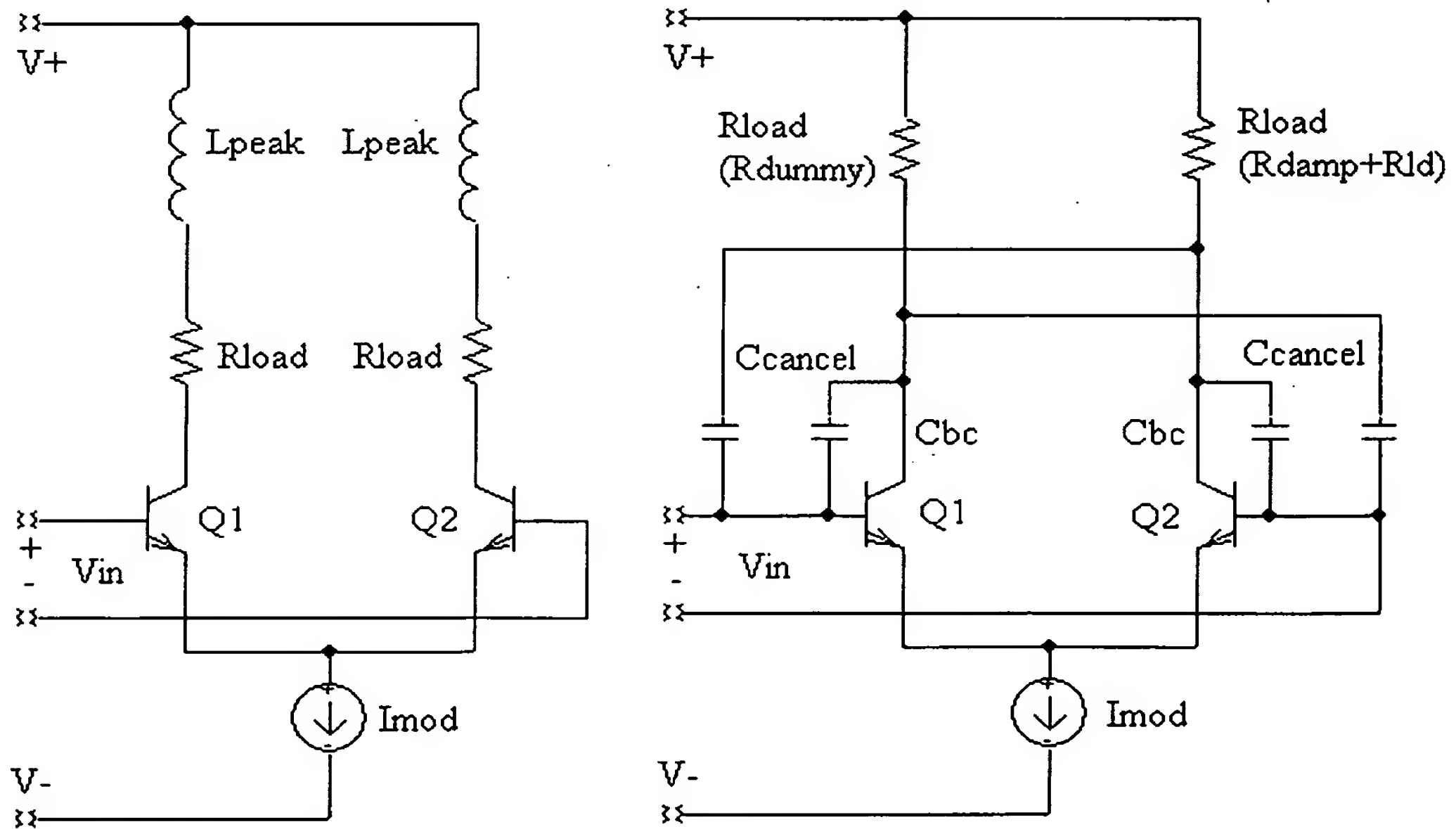


Fig. 4 Prior art output switch with inductive peaking

Fig. 5 Prior art output switch with Miller compensation

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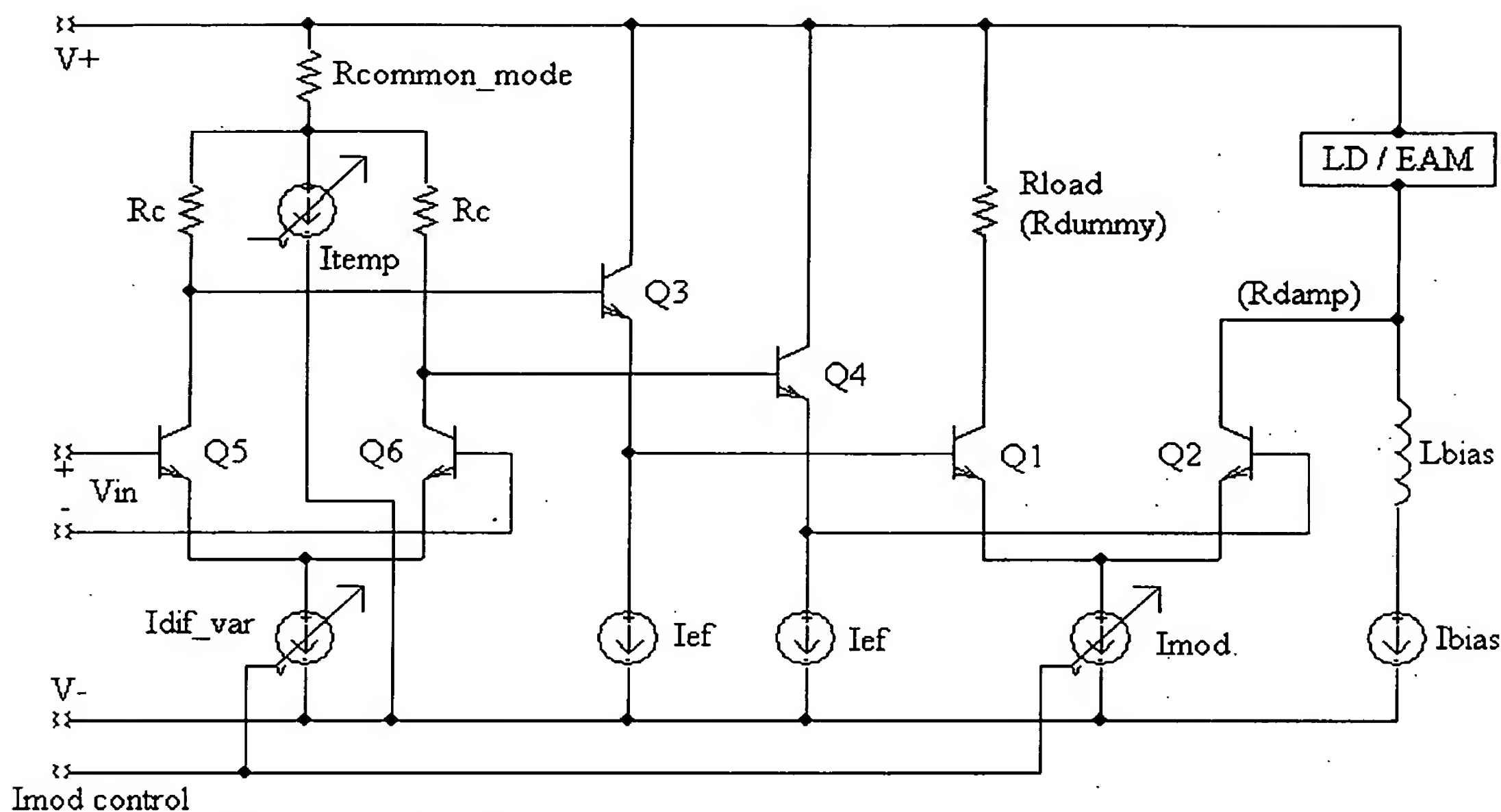


Fig. 6 Prior art LD/EAM driver with temperature compensation of the output switch headroom

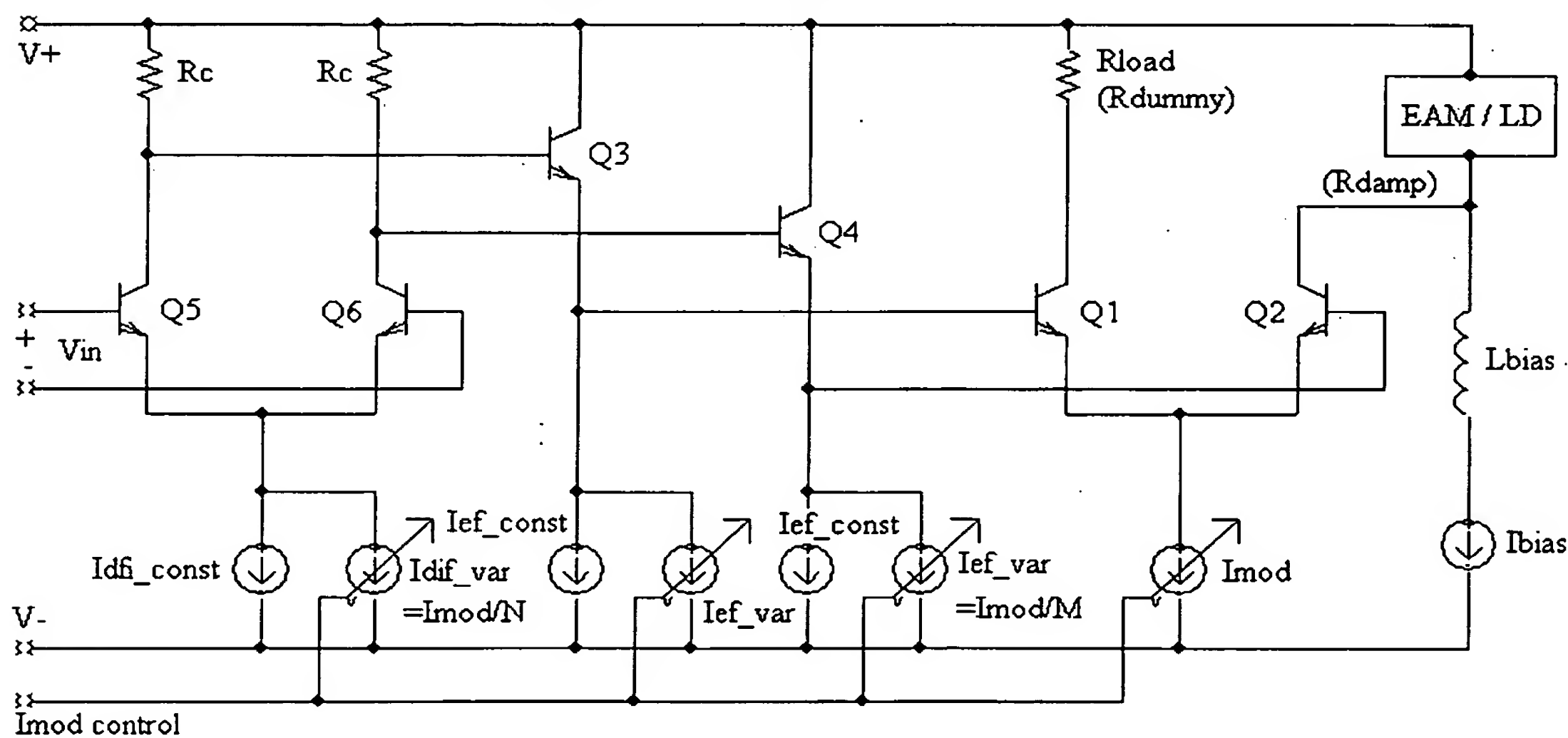


Fig. 7 Prior art LD/EAM driver with modulation current dependence of the predriver current level and voltage swing

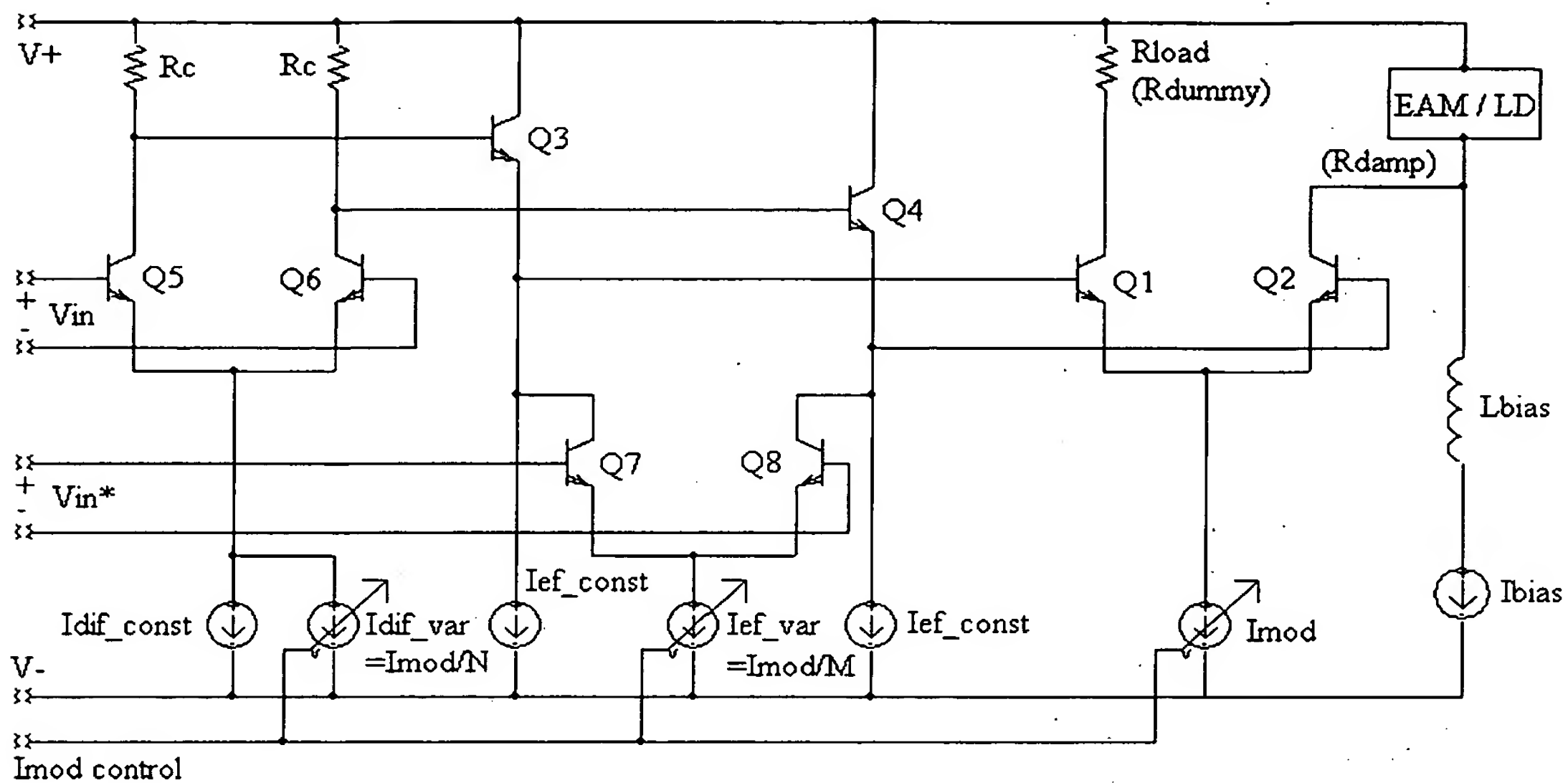


Fig. 8 Prior art LD/EAM driver with dynamic emitter follower to assure different turn-on and turn-off driving currents

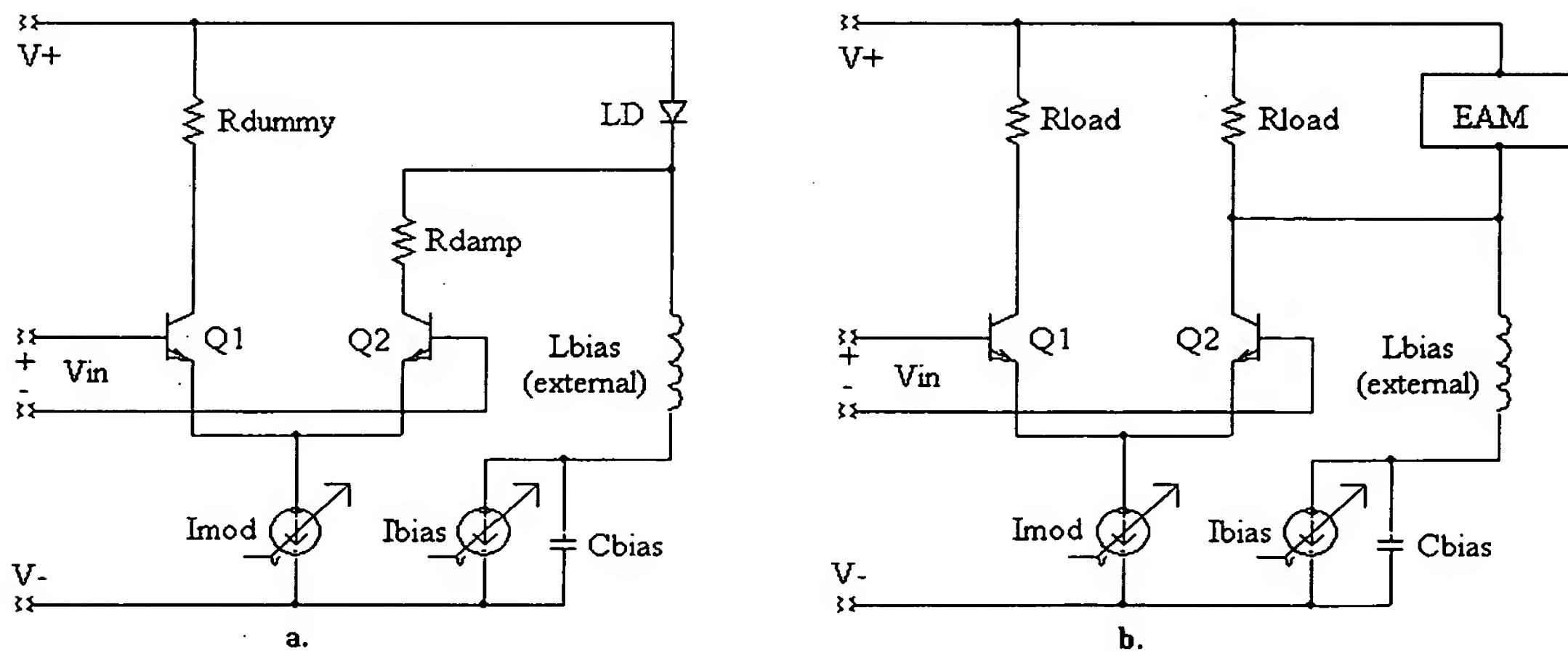


Fig. 9 Prior art LD/EAM driver with off-chip summation of the modulation and bias currents using a high value inductance

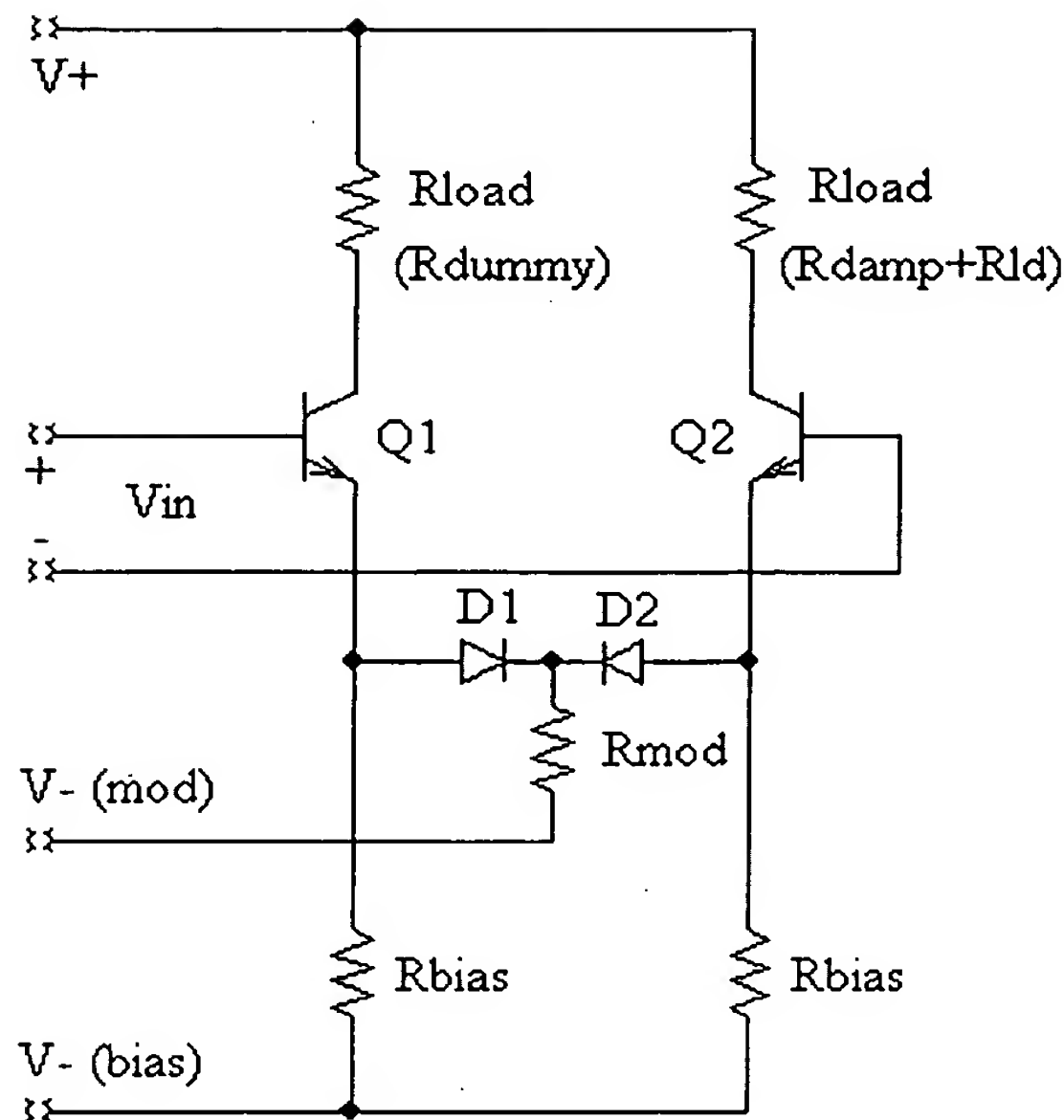


Fig. 10 Prior art LD/EAM driver that eliminates the separate bias current by using a differential pair that switches between two on-state current levels

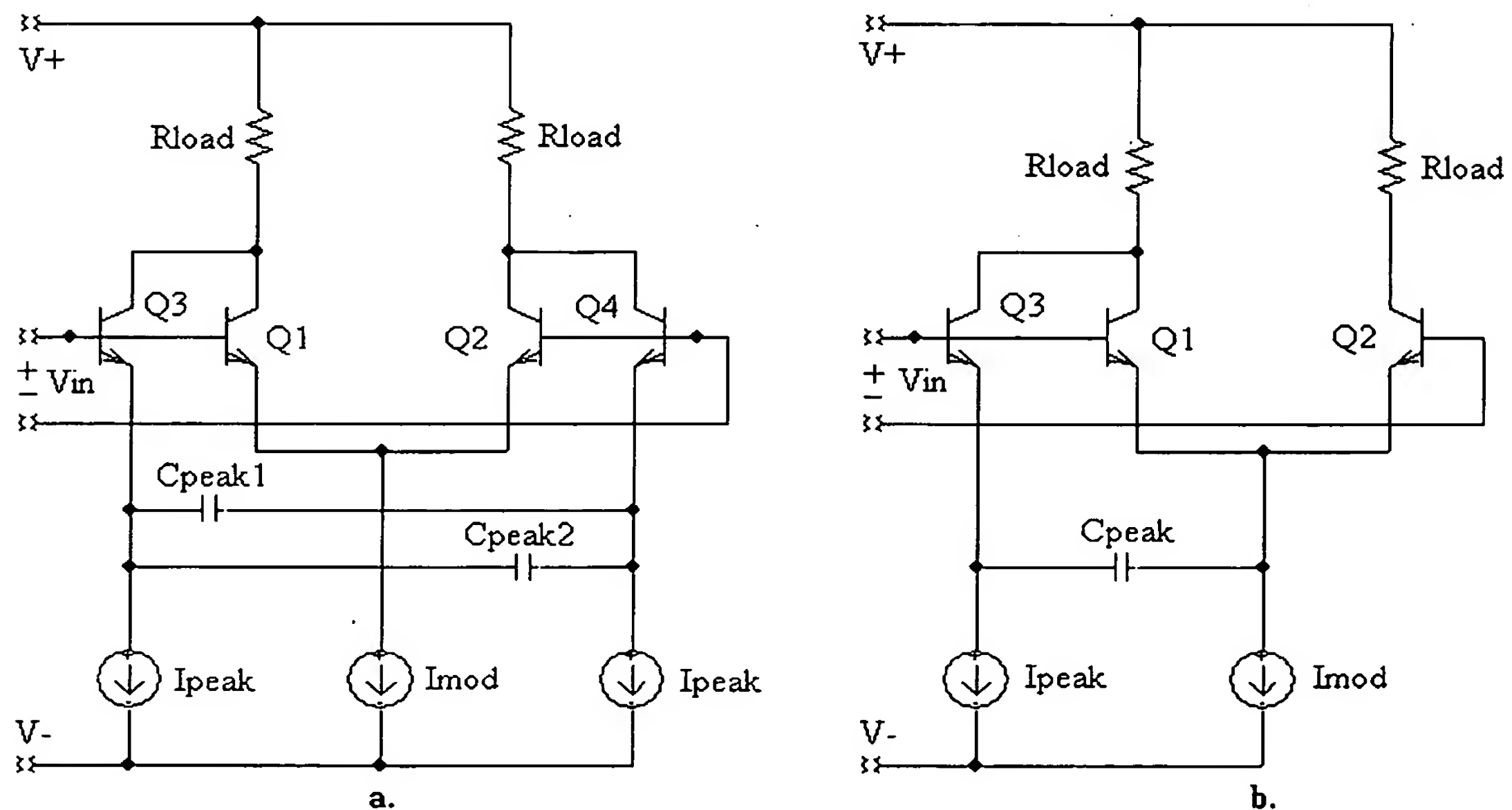


Fig. 11 Prior art dynamic emitter follower used to reduce the output overshoot:
 a. balanced dynamic emitter follower, b. one-sided dynamic emitter follower

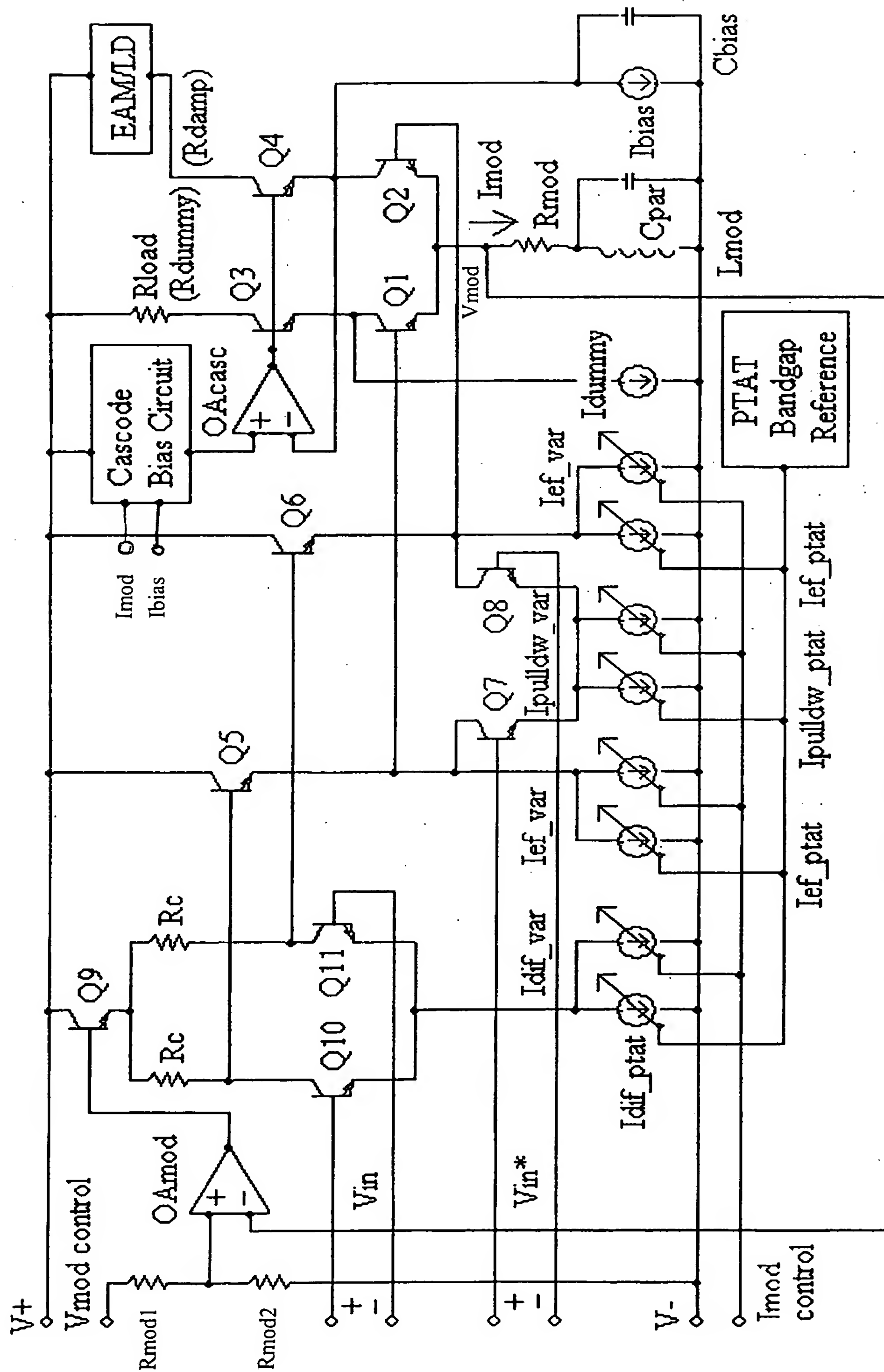


Fig.12 Cascode output switch LD/EAM driver architecture

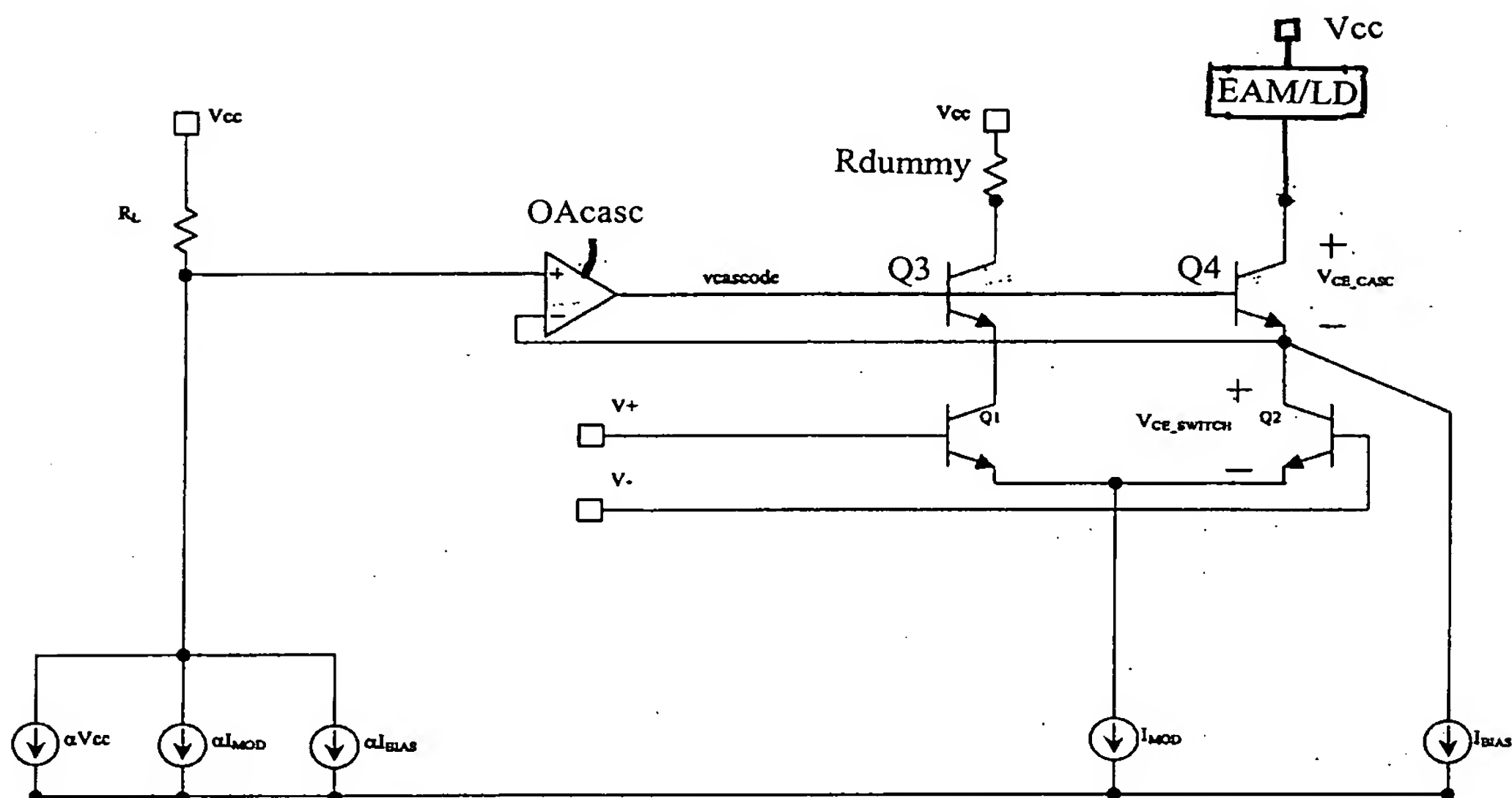


Figure 12a Cascode Bias Circuit

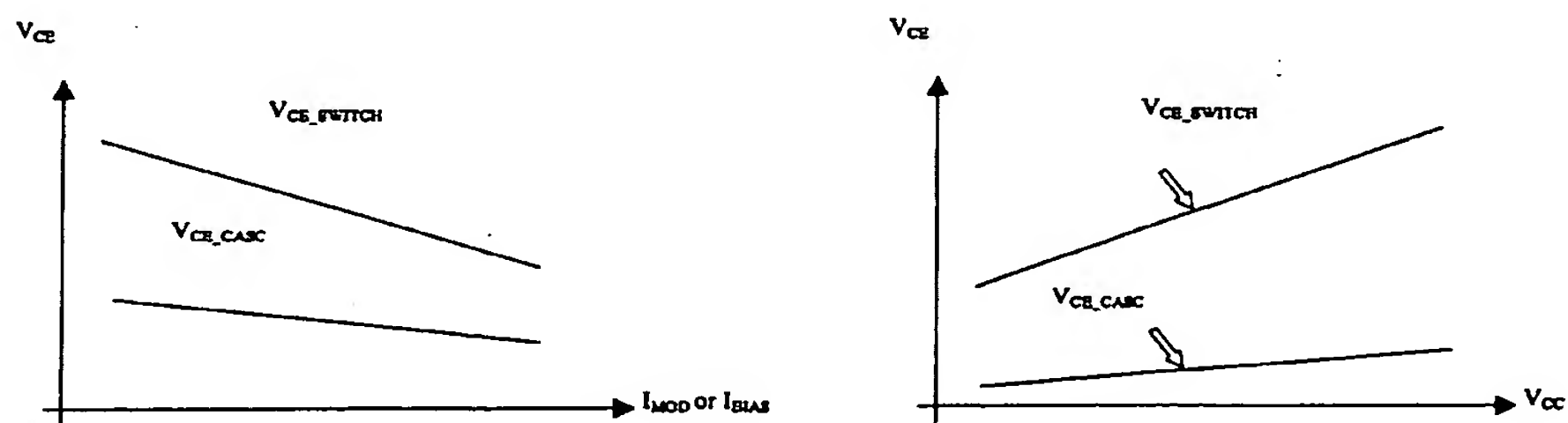


Figure 12b Cascode Bias Circuit Response

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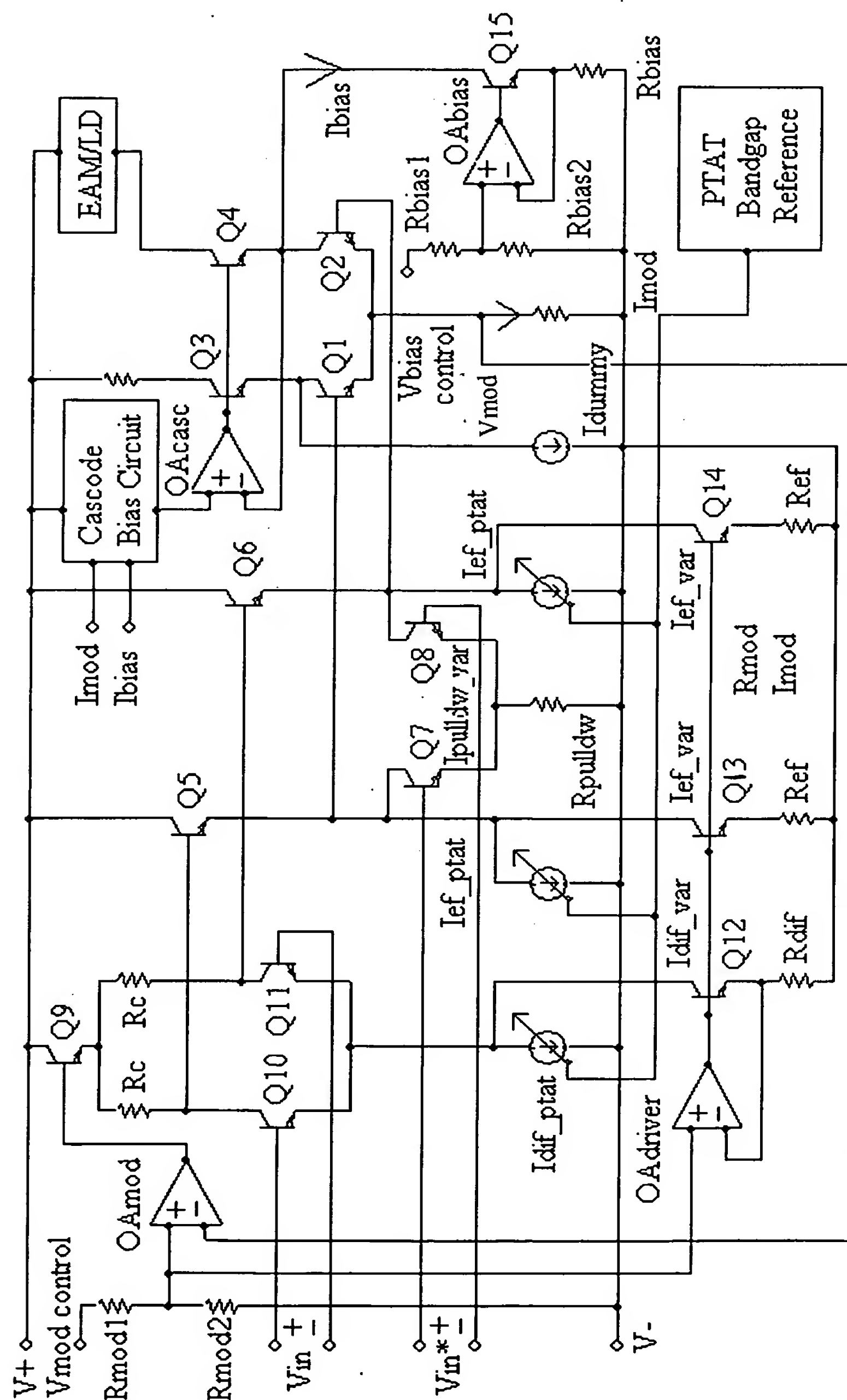


Fig. 13 First embodiment of the
 cascoded output switch LD/EAM
 driver architecture

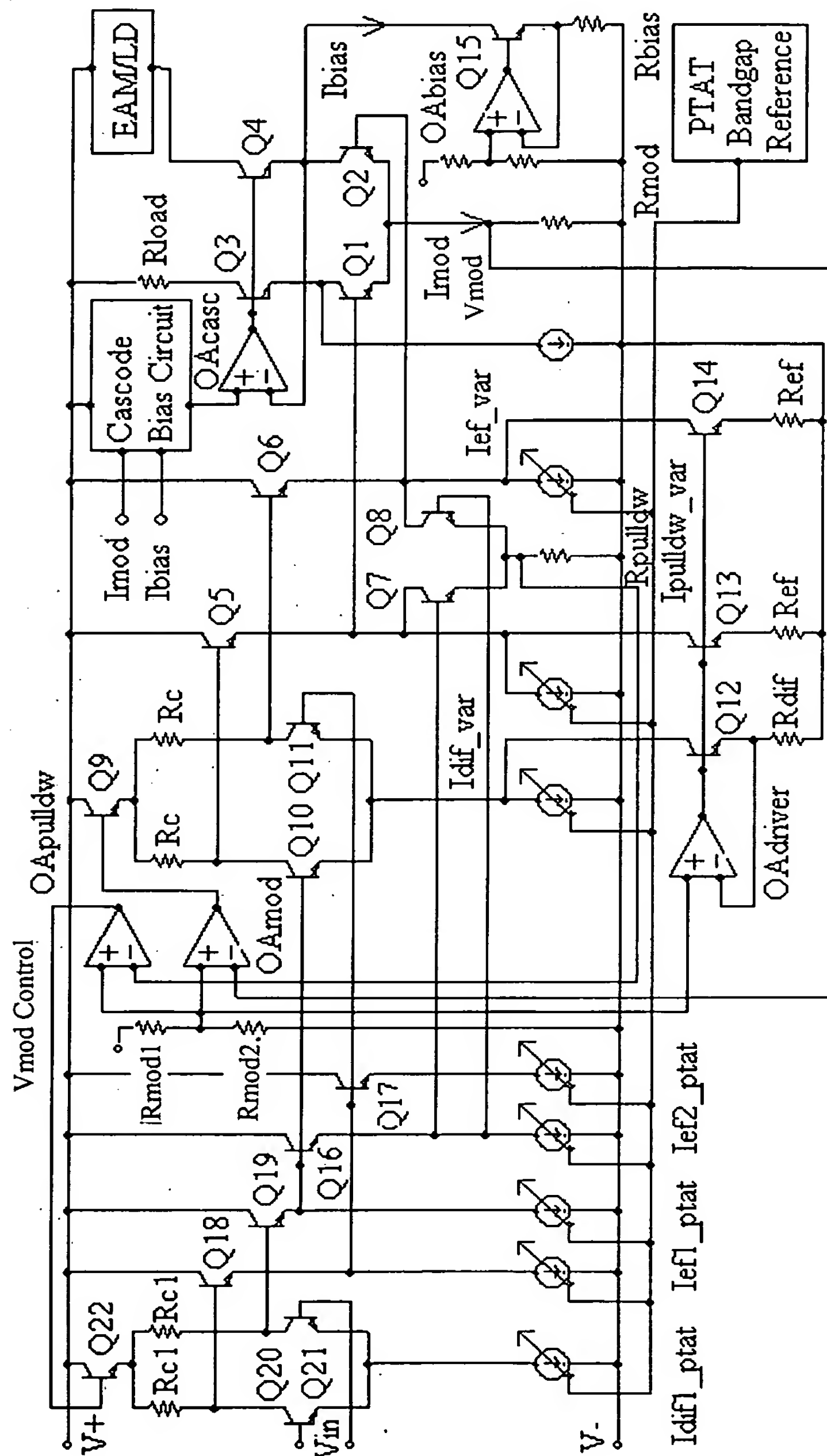


Fig. 14 Second embodiment of the
 cascoded output switch LD/EAM
 driver architecture